

Watershed Evaluations

03050111-010

(Santee River/Lake Marion)

General Description

Watershed 03050111-010 is located in Sumter, Clarendon, Calhoun, Orangeburg, and Berkeley Counties and consists primarily of the **Santee River** and its tributaries that flow into **Lake Marion**. The watershed occupies 223,194 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Chastain-Cantey-Faceville-Goldsboro-Rains series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 34.0% water, 29.8% forested land, 16.7% agricultural land, 9.2% forested wetland, 8.5% scrub/shrub land, 0.7% nonforested wetland, 0.6% urban land, and 0.5% barren land.

The Congaree River and the Wateree River join to form the headwaters of the Santee River. The Santee River flows through Lake Marion and exits through the Santee Dam or through the Diversion Canal to fill Lake Moultrie. Before entering the impounded Lake Marion, the Santee River receives drainage from Broadwater Creek and the Santee Swamp receives drainage from Tavern Creek and Mill Creek. Streams draining into Lake Marion include Squirrel Creek, Warley Creek, Spring Grove Creek (Pine Tree Creek, Ballard Creek, Half Way Creek, Duckford Branch), Richardson Branch, the Halfway Swamp Creek watershed, Little Poplar Creek, Big Poplar Creek, the Jacks Creek watershed, Cantey Bay (Oyster Bay, Monkey Bay), Chapel Branch, Webbs Creek, Mill Creek, Savana Branch, the Tawcaw Creek watershed, Eutaw Creek, and the Potato Creek watershed. Additional natural resources in the watershed include the Santee State Park, near Big Poplar Creek, and the Santee National Wildlife Refuge, which extends over the northern shoreline from Jacks Creek-Cantey Bay area to the Santee Dam. The South Carolina Public Service Authority (Santee Cooper) oversees the operation of the lake with uses that include power generation and numerous forms of recreation (hunting, fishing, boating, swimming). There are a total of 160.8 stream miles and 89,011.7 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
SC-004	SC	FW	UPPER SANTEE RIVER 0.1 MI UPSTR MOUTH OF BROADWATER CREEK
ST-527	BIO	FW	TAVERN CREEK AT SR 808
C-014/SC-006	BIO/SC	FW	WARLEY CREEK AT SC 267
SC-058	SC	FW	STREAM ORIGINATING UPSTR OF SAFETY KLEEN HAZ LANDFILL
SC-057	SC	FW	SURFACE DRAINAGE FROM SAFETY KLEEN HAZARDOUS LANDFILL
SC-005	SC	FW	UPPER LAKE MARION NEAR PACK'S LANDING
ST-034	INT	FW	LAKE MARION AT RR TRESTLE AT LONE STAR
RL-01002	RL01	FW	LAKE MARION AT RR TRESTLE AT LONE STAR
SC-008	SC	FW	LAKE MARION AT RR TRESTLE AT LONE STAR
ST-535/SC-009	BIO/SC	FW	SPRING GROVE CREEK AT SR 26 BRIDGE
SC-039	SC	FW	UPPER LAKE MARION 1.25 MI BELOW RIMINI RR TRESTLE
SC-044	SC	FW	UPPER LAKE MARION 0.3 MI NE OF STUMPHOLE LANDING

SC-010	SC	FW	UPPER LAKE MARION AT CHANNEL MARKER 150
SC-012/RL-02306	SC/RL02	FW	LAKE MARION AT JACKS CREEK EMBAYMENT
SC-011	SC	FW	BIG POPLAR CREEK AT S-38-105 BRIDGE
SC-042	SC	FW	MID LAKE MARION AT NORTH END OF I-95/US 301 BRIDGES
SC-045	SC	FW	STREAM FLOWING THROUGH SANTEE NATL. GOLF COURSE POND AT HWY 6
SC-014	SC	FW	UPPER LAKE MARION AT HEADWATERS OF CHAPEL BRANCH FLOODED CREEK
ST-025/SC-015	W/SC	FW	LAKE MARION AT OLD US 301/15 BRIDGE AT SANTEE
RL-01016	RL01	FW	LAKE MARION 1.6 MI DIRECTLY SW OF I-95 BRIDGE (MIDDLE) OVER LAKE
RL-01001	RL01	FW	LAKE MARION 2.5 MI DIRECTLY SW OF I-95 BRIDGE (MIDDLE) OVER LAKE
RL-01031	RL01	FW	LAKE MARION 3.75 MI DIRECTLY SW OF I-95 BRIDGE (MIDDLE) OVER LAKE
SC-040	SC	FW	MID LAKE MARION AT CHANNEL MARKER 79
SC-041	SC	FW	MID LAKE MARION 2 MI N OF CHANNEL MARKER 79
SC-016/RL-02308	SC/RL02	FW	LAKE MARION AT CHANNEL MARKER 69
RL-02310	RL02	FW	LAKE MARION NEAR SANTEE NAT'L WILDLIFE REFUGE
SC-035/RL-01011	SC/RL01	FW	LK MARION, 1.1MI SSE OF SANTEE NATL WILDLIFE REF & 1MI S OF EAGLE PT
SC-021	SC	FW	LOWER LAKE MARION, 0.9 MI NE OF ROCKS POND CAMPGROUND
CL-042/SC-022	INT/SC	FW	LAKE MARION FOREBAY, SPILLWAY MARKER 44
RL-01021	RL01	FW	LAKE MARION, 3 MI WSW OF EADYTOWN IN SE CORNER OF THE LAKE

Santee River (SC-004) - Aquatic life and recreational uses are fully supported.

Tavern Creek (ST-527) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Warley Creek (C-014/SC-006) - Aquatic life uses are fully supported based on macroinvertebrate community data. Recreational uses are not supported due to fecal coliform bacteria excursions.

Stream Upstream of Safety Kleen Pinewood (SC-058) - Aquatic life uses are not supported due to pH excursions. Recreational uses are fully supported.

Surface Drainage From Safety Kleen (SC-057) - Aquatic life and recreational uses are fully supported.

Lake Marion - There are thirteen SCDHEC monitoring sites in Lake Marion and there are fifteen South Carolina Public Service Authority - Santee Cooper (SCPSA) monitoring sites, many overlapping to provide greater coverage of a site. All lake sites were fully supported for recreational uses. Lake sites that are also fully supported for aquatic life uses include ***SC-005, SC-039, RL-02306/SC-012, SC-042, RL-01001, RL-01031, SC-040, SC-041, RL-02310, RL-01011/SC-035, SC-021, CL-042/SC-022, and RL-01021.***

At the combined site of ***ST-034/RL-01002/SC-008***, aquatic life uses are not supported due to total phosphorus excursions. Aquatic life uses are partially supported at ***SC-044*** due to pH excursions and not supported at ***SC-010*** due to total phosphorus excursions. Aquatic life uses are not supported at ***SC-014***, located in the Chapel Branch arm of the lake, due to excursions of pH, total phosphorus, total nitrogen, and chlorophyll-*a*. At the combined site of ***ST-025/ SC-015***, aquatic life uses are not supported due to total phosphorus excursions. There is also a significant decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. A significant decreasing trend in five-day

biochemical oxygen demand suggests improving conditions for this parameter. Aquatic life uses are partially supported at **RL-01016** and **RL-02308/ SC-016** due to pH excursions.

Due to the shallow depth and high nutrient level of the lake, aquatic macrophytes have proliferated and public access has been restricted. Hydropower generation and recreation have been impaired by the plants. Treatment measures have included aquatic herbicides and/or grass carp stocking since 1989 to the present. Aquatic herbicide continues to be applied to upper, mid, and lower lake regions to reduce problem plant populations and to reduce impacts to public accesses, recreational uses, irrigation withdrawals, navigation, and water quality. Some of the areas recently treated include the Santee State Park Swimming Lake (2001, 2004, 2005), Church Branch Impoundment (2001-2004), Fountain Lake (2001-2004), and Dean Swamp Impoundment (2001-2004).

Spring Grove Creek (ST-535/SC-009) – Aquatic life uses are fully supported based on macroinvertebrate community data. Recreational uses are not supported due to fecal coliform bacteria excursions.

Big Poplar Creek (SC-011) - Aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

Chapel Branch (SC-045) - Aquatic life and recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes Lake Marion within this watershed (see advisory p.39).

Natural Swimming Areas

FACILITY NAME RECEIVING STREAM	PERMIT # STATUS
CAMP MAC BOYKIN LAKE MARION	43-N04 ACTIVE
ROCKS POND LAKE MARION	38-N06 ACTIVE
SPIERS LANDING LAKE MARION	08-N05 ACTIVE
SANTEE STATE PARK LAKE MARION	38-N04 ACTIVE

Groundwater Quality

<u>Well #</u>	<u>Class</u>	<u>Aquifer</u>	<u>Location</u>
AMB-003	GB	BLACK CREEK	ELLOREE

NPDES Program

Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)</i>	<i>NPDES# TYPE COMMENT</i>
LAKE MARION PINWOOD SITE-HILLS/LABRUCE MINE PIPE #: 001 FLOW: M/R	SCG730026 MINOR INDUSTRIAL
LAKE MARION PINWOOD CUSTODIAL TRUST PIPE #: 001, 002, 02A FLOW: M/R	SC0042170 MINOR INDUSTRIAL (GSX; LAIDLAW; SAFETY-KLEEN)
LAKE MARION TRIBUTARY MARTIN MARIETTA/BERKELEY QUARRY PIPE #: 001 FLOW: M/R	SCG730058 MINOR INDUSTRIAL
BALLARD CREEK TOWN OF PINWOOD WWTP PIPE #: 001 FLOW: 0.134	SC0046868 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

<i>LANDFILL NAME FACILITY TYPE</i>	<i>PERMIT # STATUS</i>
DUKE POWER CO. INDUSTRIAL	463303-1601 (IWP-192, IWP-128) ACTIVE
JF CLECKLEY & CO./PLT #4 INDUSTRIAL	IWP-025, IWP-023 -----
JF CLECKLEY & CO./PLT #6 INDUSTRIAL	IWP-060 -----
LAIDLAW ENVIR. SERVICES HAZARDOUS WASTE	IWP-145 ACTIVE

Land Application Sites

<i>LAND APPLICATION SYSTEM FACILITY NAME</i>	<i>ND# TYPE</i>
SPRAYFIELD TOWN OF ELLOREE	ND0067628 DOMESTIC
TILEFIELD LAKE MARION RESORT & MARINA	ND0067610 DOMESTIC
SPRAY ON GOLF COURSE SANTEE PSD	ND0065676 DOMESTIC
ABSORPTION FIELD SANTEE RESORT HOTEL WWTP	ND0067652 DOMESTIC

TILEFIELD
SANTEE LAKES CAMPGROUND

ND0067326
DOMESTIC

SPRAYFIELD
CYPRESS POINT CONDO

ND0062227
DOMESTIC

LOW PRESSURE IRRIGATION SITE
SCDPRT/SANTEE STATE PARK

ND0067920
DOMESTIC

Mining Activities

MINING COMPANY
MINE NAME

PERMIT #
MINERAL

S.C. WATERFOWL ASSOC. (SAFETY KLEEN)
MINGO MINE #4

0712-27
CLAY

KESTREL HORIZONS (SAFETY KLEEN)
HILLS-LABRUCE

1014-27
CLAY

LAFORGE MATERIALS, INC.
MCCURRY PIT

1069-17
CLAY

Growth Potential

There is a moderate potential for growth in this watershed, which contains portions of the Towns of Pinewood, Ellore, Santee, Vance, and Eutawville due primarily to the Lake Marion related factors of fishery tourism, new lakeside subdivisions, marinas, landings, and camping facilities. There is also a potential for residential, commercial, and industrial growth around the interchanges of I-95 at the Town of Santee and with U.S. Hwy. 301 and U.S. Hwy. 15.

Watershed Restoration and Protection

Special Projects

Santee Cooper FERC Relicensing

Hydroelectric projects require licenses issued by the Federal Energy Regulatory Commission in order to operate. These licenses require re-evaluation periodically in order to incorporate new information for the protection of the common good and typically last from 30 to 50 years. In addition to economic factors, a wide variety of natural resource elements can be considered including: reservoir water quality, downstream water quality, fisheries issues, flow issues, and shoreline management issues. State and federal agencies as well as citizens and nonprofit groups have been meeting to discuss these issues in the Santee Cooper re-licensing process. All federal permits, which have any bearing on waters of the state, must first receive a §401 water quality certification. The §401 water quality certification will be SCDHEC's main responsibility in the process. For more information on Santee Cooper's re-licensing, view their website at: <http://www.santeecooper.com/environment/ferc/index.html>.